Inclusive plural interpretations depend on grammaticalized number: an argument from artificial language learning

In many languages plural forms allow both inclusive (1 or >1) and exclusive (>1) interpretations but in some languages a pluralizer is always interpreted as >1. In this paper we provide evidence from an artificial language learning experiment (modelled after Hudson Kam & Newport, 2005, 2009) that learners exposed to a language without grammaticalized number but an optional pluralizer infer that only strong readings of the plural are supported. The results support the hypothesis that weak readings depend on a paradigmatic structure for number and not on the existence of number neutral readings of count nouns. **Background**: In a Korean-like language, bare NPs appear freely in argument position with a number-neutral interpretation (Kang, 1994; Kwon & Zribi-Hertz, 2004). To disambiguate between a plural and singular interpretation, the number 'one' or a pluralizer morpheme (*teul*) can be optionally added. In AmE, the singular/plural distinction is obligatory and bare count nouns cannot appear in argument position. BrP allows bare count NPs in argument position with a number-neutral interpretation, as in Korean; but like AmE, it has a grammaticalized plural/singular distinction elsewhere (Schmitt & Munn, 2002). With respect to the *interpretation* of plural morphology, BrP patterns with AmE in opposition to Korean. In BrP and AmE, singular is semantically specified as 'one', and plural is semantically unmarked (Sauerland et al., 2005; Spector, 2007; Zweig, 2008). In upward entailing contexts, a plural is interpreted as referring to a set of more than one (>1), but in DE contexts, such as negation, a plural is interpreted as one or more (≥ 1). In AmE and BrP, (1a) is true iff the lion circles no dogs. If it circles even one dog, (1a) is false. In Korean, (1b) is interpreted as >1 and will be true if the lion circles one dog or no dogs.

(1) a. The lion did not circle dogs.
b. saca-nun kay-tul-uy cwupyen-ul maymtolci anh-a-ss-ta
lion-TOP dog-PL-GEN near-ACC circle NEG-do-PST-DECL

Predictions: If the (non-)grammaticalization of number constrains semantic interpretation, then BrP and AmE subjects should interpret plural-marked NPs as >1 in DE contexts, despite the interpretation in their native language. If the (non-)grammaticalization of number does not constrain interpretations, then AmE participants might be expected to treat number-neutral bare NPs as plurals, while BrP participants would not, given the differences in number in the two languages.

Methods: 11 BrP and 18 AmE participants were exposed to the artificial language and tested over the course of 10 sessions presented via E-Prime. The language was VSO with 4 verbs, 16 nouns, 2 number markers, and 1 negative particle. The optional number markers were introduced immediately; negation was introduced in session 8. Participants were only trained on negation targeting the verb and the identity of the object, *not* on negation targeting the number marker of the object (for testing schedule, see Table 1). **Results & Discussion**: In the final production task (Figure 1), BrP and AmE participants correctly used the bare NP with singleton and multiple-item pictures and the plural-marked NP for sets of >1 (no statistical difference by language group). In the final comprehension task of neutral environments (Figure 2), both BrP and AmE participants treated the bare NP as number neutral and the plural as >1 reading only. Interestingly, in DE contexts (Figure 3), based on the average of the 17 (of 29) participants who learned negation (5 BrP and 12 AmE), all participants seem to be interpreting the plural-marked NPs as >1 (as in Korean), rather than what they would do "in their native language", supporting our hypothesis. These findings suggest that plural cannot be treated as semantically weak (≥ 1) in a system in which number is not grammaticalized. Crucially it is not the existence of number neutral nouns that triggers the exclusive/strong readings of the plural (see also Farkas & de Swart, 2010).

Figures & Tables

	Session									
Task	1	2	3	4	5	6	7	8	9	10
Training	✓	✓	✓	✓	✓	✓		✓	✓	
Neutral Environment Comprehension Task		✓	✓	✓	✓	✓	✓	✓	✓	✓
Grammar Task		✓	✓	✓	✓	✓	✓	✓		✓
Verb Negation Task									✓	✓
Object Negation Task									✓	✓
Object Number Negation Task										✓
Production Task							✓			✓

Table 1

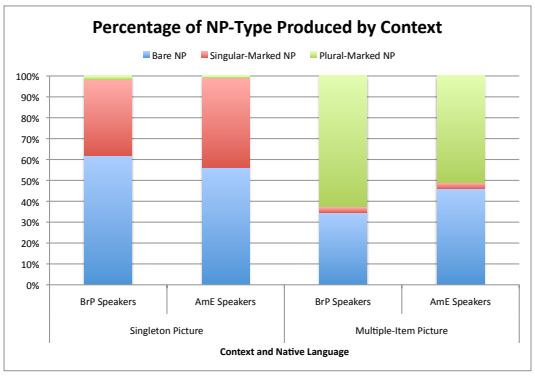

Figure 1

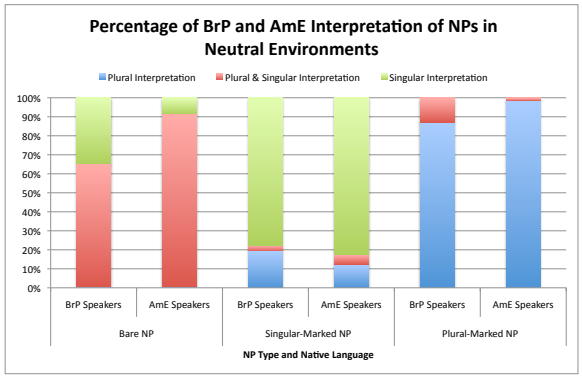

Figure 2

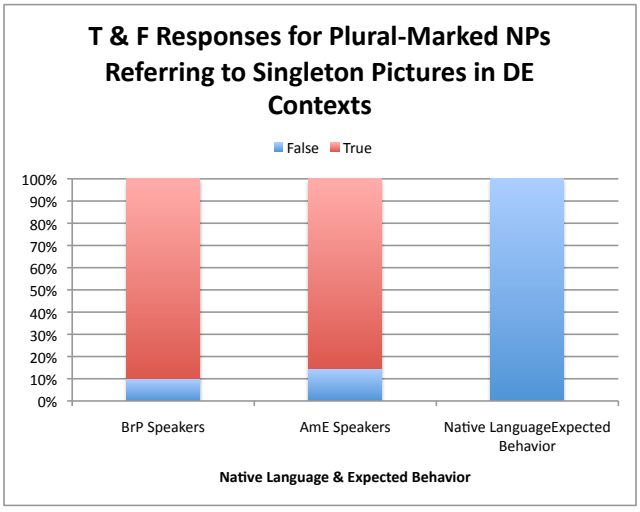

Figure 3